

**Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services**

STATEMENT OF BASIS

**Maleic Anhydride Plant
Rubicon LLC
Geismar, Ascension Parish, Louisiana
Agency Interest Number: 1467
Activity Number: PER20060016
Draft Permit 3037-V0**

I. APPLICANT:

Company:
Rubicon LLC
P. O. Box 517
Geismar, LA 70734

Facility:
Maleic Anhydride Plant
9156 Hwy 75
Geismar, LA 70734
Approximate UTM coordinates are 691.657 kilometers East and 3342.566
kilometers North, Zone 15
SIC Code: 2821

II. FACILITY AND CURRENT PERMIT STATUS:

The maleic anhydride (Man) plant consists of a fixed bed reactor area, absorbing, stripping and Man refining areas. Reactor off-gas from the fixed bed reactor flows through a gas cooling system, and then feeds the absorbing and stripping systems. The off-gas from the absorbing system flows to an incinerator where the unreacted butane and other organics are destroyed. The Man recovered in the stripping system is further refined to meet finished goods specifications.

Maleic anhydride is produced by the partial oxidation of butane with air over a vanadium/phosphorus catalyst. Low concentrations (PPM range) of stabilizer (SAS) are added to the feed gas stream to stabilize catalyst activity and selectivity. Water (in the form of steam) is also added under some conditions to modify catalyst performance. Substantial amounts of carbon monoxide and carbon dioxide, along with much smaller amounts of acetic and acrylic acids, are also formed.

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The facility submitted timely applications for initial Part 70 permits and continues to operate pursuant to the "application shield" provided in the program.

Six Part 70 permits addressing portions of the facility have already been issued. These include:

| Permit # | Units or Sources | Date Issued |
|-----------------|-------------------------|--------------------|
| 2391-V7 | MDI Plant | 12/22/2005 |
| 2329-V3 | TDI Plant | 12/21/2005 |
| 2261-V2 | Aniline Complex | 09/26/2005 |
| 2010-V0 | Polyols Plant | 12/28/2004 |
| 2420-V0 | Offsites Area | 06/23/2004 |
| 2278-V0 | Reduction Plant | 10/28/2002 |

III. PROPOSED PERMIT / PROJECT INFORMATION:

Proposed Permit

A permit application and Emission Inventory Questionnaire was submitted by Rubicon LLC in April 21, 2006 requesting a Part 70 operating permit as well as additional information dated December 5, 2006.

Project Description

Rubicon is proposing construction of a new Maleic Anhydride Plant. The changes will be as follows:

1. Construction of a new Maleic Anhydride Plant;
2. Update to the TDI Boiler (Emission Point IA, Permit 2329-V3) to accommodate vents from the Maleic Anhydride Plant and the TDI Plant Closure;
3. Incorporate TDI Plant Emission Point Sources (IA – North Waste Heat Boiler HN-5472, IE – Maleic Anhydride Tank MF-59935, IH – Maleic Anhydride Loading with Scrubber, IQ – HCl Scrubber AS-5401, and RT – Pretreatment Area Vent) into the Maleic Anhydride Part 70 Operating Permit;
4. Add insignificant activities; and
5. Permit No. 2329-V3, TDI Plant, will be rescinded upon approval.

**Maleic Anhydride Plant
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Geismar, Ascension Parish, Louisiana
Agency Interest Number: 1467
Activity Number: PER20060016
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Permitted Air Emissions

Estimated emissions in tons per year are as follows:

| <u>Pollutant</u> | <u>Emissions</u> |
|------------------|------------------|
| PM ₁₀ | 4.90 |
| SO ₂ | 0.67 |
| NO _x | 56.09 |
| CO | 48.37 |
| VOC | 28.88 |

VOC LAC 33:III Chapter 51 Toxic Air Pollutants (TAPs):

| <u>Pollutant</u> | <u>TPY</u> | <u>Pollutant</u> | <u>TPY</u> |
|---------------------------|------------|-------------------------------|------------|
| 1,2 Dichlorobenzene | 0.017 | 1-Butanol | 0.009 |
| Acrylic Acid | 0.86 | Aniline | 0.01 |
| Benzene | 1.04 | Carbon Tetrachloride | 0.49 |
| Chlorinated Dibenzofurans | <0.001 | Chlorinated Dibenzo-P Dioxins | <0.001 |
| Chlorobenzene | 7.72 | Dibutyl Phthalate | 0.52 |
| Maleic anhydride | 1.58 | Methanol | 0.23 |
| Nitrobenzene | 0.007 | Phthalic Anhydride | <0.001 |
| Total | 12.48 | | |

Non- VOC TAPs (TPY):

| | |
|-------------------------------------|-------|
| Ammonia | 1.40 |
| Chlorine | 0.030 |
| Hydrochloric Acid | 0.67 |
| Methylene Chloride, Dichloromethane | 0.017 |
| Total | 2.117 |

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Regulatory Analysis

This permit was reviewed for compliance with 40 CFR 70, the Louisiana Air Quality Regulations, New Source Performance Standards (NSPS), and NESHAP. Prevention of Significant Deterioration does not apply.

This facility is a major source of toxic air pollutants (TAPs) pursuant to LAC 33:III.Chapter 51.

The Maleic Anhydride Plant is subject to 40 CFR 63, Subpart NNNNN – Hydrochloric Acid Production.

Nonattainment New Source Review NOx Netting Analysis

The construction start date for the Maleic Anhydride Project is March 1, 2007 and the project startup planned for October 1, 2008. NOx was designated as an ozone nonattainment pollutant on December 20, 2001. Thus the NOx increases due to the project are subject to NNSR netting analysis since the project increase without regards to decreases is greater than 25 tons per year.

The contemporaneous period for the Rubicon Facility Expansion Project begins January 13, 2004, which is the date of Rubicon's last NNSR permit. The NOx netting analysis shows that the project is not a major modification because the net emissions increase over the project's contemporaneous period is less than the significant net increase for NOx (25 tons/yr). Therefore, the project is not subject to NNSR review.

| Permit No. | Permit Issue Date | Description of Project | NOx Before Project (ton/yr) | NOx After Project (tons/yr) | NOx Change (tons/yr) | Creditable Increases or Decreases (tons/yr) | Cumulative Creditable Change Total (tons/yr) | Date Creditable Change Occurred |
|------------|-------------------|--|-----------------------------|-----------------------------|----------------------|---|--|---------------------------------|
| 2329-V1 | 3/31/04* | MDI Caustic Scrubber Vents to TDI Boiler | 168.00 | 170.70 | 2.70 | 2.70 | 2.70 | 10/30/04 |
| 2329-V3 | 12/21/05 | TDI Shutdown | 146.47 | 61.11 | -85.36 | -85.36 | -82.66 | 7/8/05 |
| Pending | Pending | TDI Boiler Hazardous Waste Closure | 61.11 | 7.49 | -53.62 | -53.62 | -136.28 | 7/8/05 |
| Pending | Pending | Maleic Anhydride Plant | 0.00 | 48.18 | 48.18 | 48.18 | -88.10 | Pending |
| 2261-V2 | 9/26/05 | Aniline NB Expansion and Polishing Reactor | 0.50 | 2.21 | 1.71 | 1.71 | -86.39 | 7/13/06 |

*Authorization to Construct

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Louisiana Air Quality Regulations and NSPS

The applicability of the appropriate regulations is straightforward and provided in the Facility Specific Requirements Section of the draft permit, or Section X of the Air Permit Briefing Sheet. Similarly, the Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are provided in the Facility Specific Requirements Section of the draft permit, or explained in Section XI of the Air Permit Briefing Sheet.

Prevention of Significant Deterioration Applicability

There are no net emission increases of PSD applicable compounds above the significance level. Therefore, this project is exempted from PSD review.

MACT Requirements

The Maleic Anhydride is subject to 40 CFR 63, Subparts A, F, G, DDDDD, and NNNNN. Compliance with FFFF is required by May 10, 2008 or upon startup.

Air Modeling Analysis

The air dispersion modeling results demonstrate compliance with the Louisiana Air Toxics regulations for maleic anhydride ($15.00 \mu\text{g}/\text{m}^3$) and dibutyl phthalate ($15.00 \mu\text{g}/\text{m}^3$).

General Condition XVII Activities

The facility will comply with the applicable General Condition XVII Activities emissions as required by the operating permit rule. However, General Condition XVII Activities are not subject to testing, monitoring, reporting or recordkeeping requirements. For a list of approved General Condition XVII Activities, refer to Section VIII of the draft Part 70 permit.

Insignificant Activities

All Insignificant Activities are authorized under LAC 33:III.501.B.5. For a list of approved Insignificant Activities, refer to Section IX of the draft Part 70 permit.

IV. Permit Shields

A permit shield was not requested.

Maleic Anhydride Plant
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Geismar, Ascension Parish, Louisiana
Agency Interest Number: 1467
Activity Number: PER20060016
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V. Periodic Monitoring

The Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are provided in the Facility Specific Requirements Section of the proposed permit.

VI. Applicability and Exemptions of Selected Subject Items

| ID No: | Requirement | Notes |
|--------|---|-------|
| | See Tables X and XI of Air Briefing Sheet | |
| | | |

VII. Streamlined Requirements

| Unit or Plant Site | Programs Being Streamlined | Stream Applicability | Overall Most Stringent Program |
|------------------------|--|----------------------|--------------------------------|
| Maleic Anhydride Plant | LAC 33:III.2121-Louisiana Fugitive Emission Control for Specified Parishes | $\geq 10\%$ VOC | HON Subpart H |
| | 40 CFR 63, NESHAP (HON) Subpart H | $\geq 5\%$ VOHAP | |
| | LAC 33:III.5109 – Louisiana MACT Determination for Non-HON Sources | $\geq 5\%$ VOTAP | |

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Glossary

Best Available Control Technologies (BACT) - An emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under this part which would be emitted from any proposed major stationary source or major modification which the administrative authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.

Carbon Monoxide (CO) – A colorless, odorless gas which is an oxide of carbon.

Grandfathered Status- Those facilities that were under actual construction or operation as of June 19, 1969, the signature date of the original Clean Air Act. These facilities are not required to obtain a permit. Facilities that are subject to Part 70 (Title V) requirements lose grandfathered status and must apply for a permit.

Maximum Achievable Control Technology (MACT) - The maximum degree of reduction in emissions of each air pollutant subject to LAC 33:III.Chapter 51 (including a prohibition on such emissions, where achievable) that the administrative authority, upon review of submitted MACT compliance plans and other relevant information and taking into consideration the cost of achieving such emission reduction, as well as any non-air-quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems, or techniques.

New Source Review (NSR) - A preconstruction review and permitting program applicable to new or modified major stationary sources of air pollutants regulated under the Clean Air Act (CAA). NSR is required by Parts C ("Prevention of Significant Deterioration of Air Quality") and D ("Nonattainment New Source Review").

Nitrogen Oxides (NO_x) - Compounds whose molecules consists of nitrogen and oxygen.

National Emission Standards for Hazardous Air Pollutants (NESHAP) – Toxic air emission standards for specific types of facilities, as outlined in 40 CFR Parts 61 through 63.

Nonattainment New Source Review (NNSR) - A New Source Review permitting program for major sources in geographic areas that do not meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. Nonattainment NSR is designed to ensure that emissions associated with new or modified sources will be regulated with the goal of improving ambient air quality.

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Organic Compound - Any compound of carbon and another element. Examples: Methane (CH₄), Ethane (C₂H₆), Carbon Disulfide (CS₂)

PAI Pesticide Active Ingredient MACT – any facility that is subject to 40 CFR 63 Subpart MMM

Part 70 Operating Permit- Also referred to as a Title V permit, required for major sources as defined in 40 CFR 70 and LAC 33:III.507. Major sources include, but are not limited to, sources which have the potential to emit: ≥ 10 tons per year of any toxic air pollutant; ≥ 25 tons of total toxic air pollutants; and ≥ 100 tons per year of regulated pollutants (unless regulated solely under 112(r) of the Clean Air Act) (25 tons per year for sources in non-attainment parishes).

PM₁₀- Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by the method in Title 40, Code of Federal Regulations, Part 50, Appendix J.

Potential to Emit (PTE) - The maximum capacity of a stationary source to emit any air pollutant under its physical and operational design.

Prevention of Significant Deterioration (PSD) – A New Source Review permitting program for major sources in geographic areas that meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. PSD requirements are designed to ensure that the air quality in attainment areas will not degrade.

Sulfur Dioxide (SO₂) – An oxide of sulphur.

Title V permit – See Part 70 Operating Permit.

Volatile Organic Compound (VOC) - Any organic compound which participates in atmospheric photochemical reactions; that is, any organic compound other than those which the administrator of the U.S. Environmental Protection Agency designates as having negligible photochemical reactivity.

HCl Production Facility – the collection of unit operations and equipment associated with the production of liquid HCl product.

Miscellaneous Organic NESHAP (MON) MACT – limit the emissions of organic, halogenated, and particulate matter HAPs from continuous and batch reactors, storage tanks, fugitive components, transfer racks, transport vessels, and wastewater conveyance and treatment systems.